Attorney Docket No. 5051-574CT PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re: Martin et al.
Serial No.: 10/802,644
Filed: March 17, 2004
For: *Blocking Peptide for Inflammatory Cell Secretion*

Confirmation No.: 3963
Art Unit: 1644
Examiner: Haddad

Date: July 11, 2006

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Attachment B

Exhibit 1

Curriculum Vitae of Duncan Rogers, Ph.D.

CURRICULUM VITAE

Full Name and Title: Dr Duncan Fraser ROGERS

Address: Section of Airway Disease
National Heart & Lung Institute
Imperial College London
Dovehouse Street
London SW3 6LY
U.K.

Title of Current Appointment: Reader in Respiratory Pharmacology (1999)
Recognised Teacher of The University of London (Physiology) (1989)

Higher education:

- B.Sc. in Applied Biology (2:1 Hons.), 1976. Brunel University.
- Postgraduate Certificate in Education (P.G. Cert. Ed.), 1977. Garnett College (University of London).
- Ph.D. in Physiology, 1984. University of London.

Membership of Professional Bodies and Learned Societies:

- Membership of the Institute of Biology (M.I.Biol.) 1981, and Chartered Biologist (C.Biol.) 1995.
- Fellow of the Institute of Biology (FIBiol) 2002.
- British Association for Lung Research, 1982.
  Meetings Secretary 1990 -1993
  Chairman, 1993 - 1995.
- British Pharmacological Society, 1988.
- The Physiological Society, 1993.
- Airway Mucus Club, 1986.
  Meetings Secretary 1988-1992.
- British Inflammation Research Association (BIRAS), 1994.
- Member of the British Lung Foundation's Scientific Committee (2000-2003).

Journal Editorships

- *Thorax*: Associate Editor (1995-1997). Member of the Advisory Board (1997-2002)
- *British Journal of Pharmacology*: Member of Editorial Board (1997-2000).
- *Current Drugs*: Member of Panel of Evaluators (1998-present).

- *Experimental Lung Research*: Editor-in-Chief (2001-present).

Publications
Peer-reviewed papers

1. Doig, R.I., Done, A.A. & **Rogers D.F.** (1975) Pre-harvest sprouting in bread wheat (*Triticum aestivum*) as influenced by cytoplasmic male-sterility derived from *T. timopheevi*. Euphytica 24, 229-232.

2. **Rogers, D.F.** & Jeffery, P.K. (1986) Inhibition by oral N-acetylcysteine of cigarette smoke-induced 'bronchitis' in the rat. Exp. Lung Res. 10, 267-283.

3. **Rogers, D.F.** & Jeffery, P.K. (1986) Inhibition of cigarette smoke-induced airway secretory cell hyperplasia by indomethacin, dexamethasone, prednisolone, or hydrocortisone in the rat. Exp. Lung Res. 10, 285-298.

4. **Rogers, D.F.** & Jeffery, P.K. (1986) Indomethacin and flurbiprofen speed recovery of rat bronchial epithelium after exposure to cigarette smoke. Exp. Lung Res. 10, 299-312.

5. **Rogers, D.F.**, Williams, D.A. & Jeffery, P.K. (1986) Nicotine does not cause 'bronchitis' in the rat. Clin. Sci. 70, 427-433.

6. Evans, T.W., Chung, K.F., **Rogers, D.F.** & Barnes, P.J. (1987) Effect of platelet-activating factor on airway vascular permeability: possible mechanisms. J. Appl. Physiol. 63, 479-484.

7. **Rogers, D.F.**, Turner, N.C., Marriott, C. & Jeffery, P.K. (1987) Cigarette smoke-induced 'chronic bronchitis': a study in situ of laryngo-tracheal hypersecretion in the rat. Clin. Sci. 72, 629-637.

8. **Rogers, D.F.**, Godfrey, R.W.A., Majumdar, S. & Jeffery, P.K. (1988) Oral N-acetylcysteine speeds reversal of cigarette smoke-induced mucous cell hyperplasia in the rat. Exp. Lung Res. 14, 19-35.

9. Evans, T.W., Dent, G., **Rogers, D.F.**, Aursudkij, B., Chung, K.F. & Barnes, P.J. (1988) Effect of a PAF antagonist, WEB 2086, on airway microvascular leakage in the guinea-pig and platelet aggregation in man. Br. J. Pharmacol. 94, 164-168.

10. Evans, T.W., **Rogers, D.F.**, Aursudkij, B., Chung, K.F. & Barnes, P.J. (1988) Inflammatory mediators involved in antigen-induced airway microvascular leakage in guinea-pigs. Am. Rev. Respir. Dis. 138, 395-399.

11. **Rogers, D.F.**, Belvisi, M.G., Aursudkij, B., Evans, T.W. & Barnes, P.J. (1988) Effects and interactions of sensory neuropeptides on airway microvascular leakage in

guinea pigs. Br. J. Pharmacol. 95, 1109-1116.

12. Boschetto, P., Roberts, N.M., **Rogers, D.F.** & Barnes, P.J. (1989) Effect of anti-asthma drugs on microvascular leakage in guinea-pig airways. Am. Rev. Respir. Dis. 139, 416-421.

13. Belvisi, M.G., **Rogers, D.F.** & Barnes, P.J. (1989) Neurogenic plasma extravasation: inhibition by morphine in guinea pig airways in vivo. J. Appl. Physiol. 66, 268-272.

14. Evans, T.W., **Rogers, D.F.**, Aursudkij, B., Chung, K.F. & Barnes, P.J. (1989) Regional and time-dependent effects of inflammatory mediators on airway microvascular permeability in the guinea pig. Clin. Sci. 76, 479-485.

15. **Rogers, D.F.** & Barnes, P.J. (1989) Opioid inhibition of neurally mediated mucus secretion in human bronchi. The Lancet i, 930-932.

16. **Rogers, D.F.**, Boschetto, P. & Barnes, P.J. (1989) Plasma exudation: correlation between Evans blue dye and radiolabelled albumin in guinea pig airways in vivo. J. Pharmacol. Methods 21, 309-315.

17. **Rogers, D.F.**, Turner, N.C., Marriott, C. & Jeffery, P.K. (1989) Oral N-acetylcysteine or S-carboxymethylcysteine inhibit cigarette smoke-induced hypersecretion of mucus in rat larynx and trachea in situ. Eur. Resp. J. 2, 955-960.

18. **Rogers, D.F.**, Aursudkij, B. & Barnes, P.J. (1989) Effects of tachykinins on mucus secretion in human bronchi in vitro. Eur. J. Pharmacol. 174, 283-286.

19. Evans, T.W., **Rogers, D.F.**, Belvisi, M.G., Rohde, J.A.L., Chung, K.F. & Barnes, P.J. (1990) Endotoxin-induced plasma exudation in guinea pig airways in vivo and the effect of neutrophil depletion. Eur. Resp. J. 3, 299-303.

20. Evans, T.W., McAnulty, R.J., **Rogers, D.F.**, Chung, K.F., Barnes, P.J. & Laurent, G.J. (1990) Bleomycin-induced lung injury in the rat: effects of the platelet activating factor (Paf) receptor antagonist BN 52021 and platelet depletion. Env. Health Perspectives 85, 65-69.

21. Belvisi, M.B., Barnes, P.J. & **Rogers, D.F.** (1990) Neurogenic inflammation in the airways: characterisation of electrical parameters for vagus nerve stimulation in the guinea-pig. J. Neurosci. Methods 32, 159-167.

22. Tokuyama, K., Kuo, H.-P., Rohde, J.A.L., Barnes, P.J. & **Rogers, D.F.** (1990) Neural control of goblet cell secretion in guinea pig airways. Am. J. Physiol. 259, L108-L115.

23. **Rogers, D.F.**, Alton, E.W.F.W., Aursudkij, B., Boschetto, P., Dewar, A. & Barnes, P.J. (1990) Effect of platelet activating factor on formation and composition of airway fluid in the guinea-pig. J. Physiol. 431, 643-658.

24. **Rogers, D.F.**, Dijk, S. & Barnes, P.J. (1990) Bradykinin-induced plasma exudation in guinea pig airways: involvement of platelet activating factor. Br. J. Pharmacol. 101, 739-745.

25. Kuo, H.-P., Rohde, J.A.L., Tokuyama, K., Barnes, P.J. & **Rogers, D.F.** (1990) Capsaicin and sensory neuropeptide stimulation of goblet cell secretion in guinea-pig trachea. J. Physiol. 431, 629-641.

26. **Rogers, D.F.**, Alton, E.W.F.W., Dewar, A., Geddes, D.M. & Barnes, P.J. (1990) Tracheal potential difference in the reserpine and isoproterenol rat models of cystic fibrosis. Exp. Lung Res. 16, 661-670.

27. Boschetto, P., **Rogers, D.F.**, Fabbri, L.M. & Barnes, P.J. (1991) Corticosteroid inhibition of airway microvascular leakage. Am. Rev. Respir. Dis. 143, 605-609.

28. **Rogers, D.F.**, Godfrey, R.W.A., Castro, K., & P.K. Jeffery (1991) Effects of a new compound (Zy 15850A) on cigarette smoke-induced bronchitis in the rat. Agents Actions 33, 359366.

29. Lei, Y.-H., Barnes, P.J. & **Rogers, D.F.** (1992) Inhibition of neurogenic plasma exudation in guinea pig airways by CP-96,345, a new non-peptide NK_1 antagonist. Br. J. Pharmacol. 105, 261-262 (*'Special Report'*).

30. Kuo, H.-P., Rohde, J.A.L., Barnes, P.J. & **Rogers D.F.** (1992) Differential inhibitory effects of opioids on cigarette smoke, capsaicin and electrically-induced goblet cell secretion. Br. J. Pharmacol. 105, 361-366.

31. Kuo, H.-P., Rohde, J.A.L., Barnes, P.J. & **Rogers, D.F.** (1992) K^+ channel activator inhibition of neurogenic goblet cell secretion in guinea pig trachea. Eur. J. Pharmacol. 215, 297-299.

32. Kuo, H.-P., Rohde, J.A.L., Barnes, P.J. & **Rogers, D.F.** (1992) Cigarette smoke-induced airway goblet cell secretion: dose-dependent differential nerve activation. Am. J. Physiol. 263, L161-167.

33. Alton, E.W.F.W., **Rogers, D.F.**, Logan-Sinclair, R., Yacoub, M., Barnes, P.J. & Geddes, D.M. (1992). Bioelectric properties of cystic fibrosis airways obtained from heart-lung transplantation. Thorax 47, 1010-1014.

34. Hui, K.P., Lotvall, J., **Rogers, D.F.**, Barnes, P.J. & Chung, K.F. (1992) Ovalbumin aerosol challenge in actively sensitized guinea pigs: relationship between

airway microvascular leakage and airflow obstruction. Allergy 47, 527-531.

35. Lei, Y.-H., Barnes, P.J. & **Rogers, D.F.** (1993) Regulation of NANC neural bronchoconstriction *in vivo* in the guinea pig: involvement of nitric oxide, vasoactive intestinal peptide and soluble guanylyl cyclase. Br. J. Pharmacol. 108, 228-235.

36. **Rogers, D.F.**, Alton, E.W.F.W., Dewar, A., Lethem, M.I. & Barnes, P.J. (1993) Impaired stimulus-evoked mucus secretion in cystic fibrosis bronchi. Exp. Lung Res. 19, 37-53.

37. Hirayama, Y., Lei, Y.-H., Barnes, P.J. & **Rogers, D.F.** (1993) Effects of two novel tachykinin antagonists, FK224 and FK888, on neurogenic airway plasma exudation, bronchoconstriction and systemic hypotension in guinea-pigs *in vivo*. Br. J. Pharmacol. 108, 844-851.

38. Meini, S., Mak, J.C.W., Rohde, J.A.L. & **Rogers, D.F.** (1993) Tachykinin control of ferret airways: mucus secretion, bronchoconstriction and receptor mapping. Neuropeptides 24, 81-89.

39. Lei, Y.-H., Barnes, P.J. & **Rogers, D.F.** (1993) Inhibition of neurogenic plasma exudation and bronchoconstriction by a K^+ channel activator, BRL 38227, in guinea pig airways *in vivo*. Eur. J. Pharmacol. 239, 257-259.

40. Ramnarine, S.I., Hirayama, Y., Barnes, P.J. & **Rogers, D.F.** (1994) 'Sensory-efferent' neural control of mucus secretion: characterisation using tachykinin receptor antagonists in ferret trachea *in vitro*. Br. J. Pharmacol. 113, 1183-1190.

41. Hayes, J.P., Kuo, H.-P., Rohde, J.A.L., Newman Taylor, A.J., Barnes, P.J., Chung, K.F. & **Rogers, D.F.** (1995) Neurogenic goblet cell secretion and bronchoconstriction in guinea pigs sensitised to trimellitic anhydride. Eur. J. Pharmacol. Environ. Tox. Pharmacol. Section 292, 127-134.

42. Lei, Y.-H., Barnes, P.J. & **Rogers, D.F.** (1995) Mechanisms and modulation of airway plasma exudation after direct inhalation of cigarette smoke. Am. J. Respir. Crit. Care Med. 151, 1752-1762.

43. Lei, Y.-H., Barnes, P.J. & **Rogers, D.F.** (1996) Involvement of hydroxyl radicals in neurogenic airway plasma exudation and bronchoconstriction in guinea-pigs *in vivo*. Br. J. Pharmacol. 117, 449-454.

44. Ramnarine, S.I., Khawaja, A.M., Barnes, P.J. & **Rogers, D.F.** (1996) Nitric oxide inhibition of basal and neurogenic mucus secretion in ferret trachea *in vitro*. Br J Pharmacol. 118, 998-1002.

45. Ramnarine, S.I., Haddad, E.-B., Khawaja, A.M., Mak, J.C.W. & **Rogers, D.F.**

(1996) On muscarinic control of neurogenic mucus secretion in ferret trachea. J. Physiol. 494, 577-586.

46. Newman, T.M., Robichaud, A. & **Rogers, D.F.** (1996) Microanatomy of secretory granule release from guinea pig tracheal goblet cells. Am. J. Respir. Cell Mol. Biol. 15: 529-539.

47. Emms, J.C. & **Rogers, D.F.** (1997) Cigarette smoke-inhibition of neurogenic bronchoconstriction in guinea pigs *in vivo*: involvement of exogenous and endogenous nitric oxide. Br. J. Pharmacol. 121: 779-785.

48. Nightingale, J.A., **Rogers, D.F.** & Barnes, P.J. (1998) The effect of repeated sputum induction on cell counts in normal volunteers. Thorax 53: 87-90.

49. Ramnarine, S.I., Liu, Y.-C. & **Rogers, D.F.** (1998) Neuroregulation of mucus secretion by opioid receptors and K_{ATP} and BK_{Ca} channels in ferret trachea *in vitro*. Br. J. Pharmacol. 123: 1631-1638.

50. Liu, Y.-C., Khawaja, A.M. & **Rogers, D.F.** (1998) Effects of the cysteinyl leukotriene receptor antagonists pranlukast and zafirlukast on tracheal mucus secretion in ovalbumin-sensitized guinea pigs *in vitro*. Br. J. Pharmacol. 124: 563-571.

51. Nightingale, J.A., **Rogers, D.F.**, Hart, L.A., Kharitonov, S.A., Chung, K.F. & Barnes, P.J. (1998) Effect of inhaled endotoxin on induced sputum in normal, atopic, and atopic asthmatic subjects. Thorax 53: 563-571.

52. Liu, Y.-C., Patel, H.J., Khawaja, A.M., Belvisi, M.G. & **Rogers, D.F.** (1999) Neuroregulation by vasoactive intestinal peptide (VIP) of mucus secretion in ferret trachea: activation of BK_{Ca} channels and inhibition of neurotransmitter release. Br. J. Pharmacol. 126: 147-158.

53. Lei, Y.-H. & **Rogers, D.F.** (1999) Effects and interactions of opioids on plasma exudation induced by cigarette smoke in guinea pig bronchi. Am. J. Physiol. 276, L391-L397.

54. Nightingale, J.A., **Rogers, D.F.** & Barnes, P.J. (1999) Differential effect of formoterol on adenosine monophosphate and histamine reactivity in asthma. Am. J. Respir. Crit. Care Med. 159, 1786-1790.

55. Liu, Y.-C., Khawaja, A.M. & **Rogers, D.F.** (1999) Effect of vasoactive intestinal peptide (VIP)-related peptides on cholinergic neurogenic and direct mucus secretion in ferret trachea *in vitro*. Br. J. Pharmacol. 128, 1353-1359.

56. Nightingale, J.A., **Rogers, D.F.** & Barnes, P.J. (1999) Effect of inhaled ozone on

exhaled nitric oxide in normal subjects and asthmatic subjects. Thorax 54, 1061-1069.

57. Khawaja, A.M., Liu, Y.-C. & **Rogers, D.F.** (1999) Effect of fenspiride, a non-steroidal antiinflammatory agent, on neurogenic mucus secretion in ferret trachea in vitro. Pulm. Pharmacol. Therapeutics 12, 363-368.

58. Khawaja, A.M., Liu, Y.-C. & **Rogers, D.F.** (1999) Effect of non-peptide tachykinin NK_1 receptor antagonists on non-adrenergic, non-cholinergic neurogenic mucus secretion in ferret trachea. Eur. J. Pharmacol. 384, 173-181.

59. Nightingale, J.A., **Rogers, D.F.**, Chung, K.F. & Barnes, P.J. (2000) No effect of inhaled budesonide on the response to inhaled ozone in normal subjects. Am. J. Respir. Crit. Care Med. 161, 479-486.

60. Nightingale, J.A., Maggs, R., Cullinan, P., Donnelly, L.E., **Rogers, D.F.**, Kinnersley, R., Chung, K.F. & Barnes, P.J., Ashmore, M., Newman-Taylor, A. (2000) Airway inflammation after controlled exposure to diesel exhaust particulates. Am. J. Respir. Crit. Care Med. 162, 161-166.

61. Khan, S., Liu, Y.-C., Khawaja, A.M., Manzini, S. & **Rogers, D.F.** (2001) Effect of the long-acting tachykinin NK1 receptor antagonist MEN 11467 on tracheal mucus secretion in allergic ferrets. Br. J. Pharmacol. 132, 189-196.

62. Nightingale, J.A., **Rogers, D.F.** & Barnes, P.J. (2002) Comparison of the effects of salmeterol and formoterol in patients with severe asthma. Chest 121, 1401-1406.

63. Culpitt, S.V., de Matos, C., Russell, R.E., Donnelly, L.E., **Rogers, D.F.** & Barnes, P.J. (2002) Effect of theophylline on induced sputum inflammatory indices and neutrophil chemotaxis in COPD. Am. J. Respir. Crit. Care Med. 165, 1371-1376.

64. Culpitt, S.V., **Rogers, D.F.**, Shah, P., de Matos, C., Russell, R.E.K., Donnelly, L.E. & Barnes, P.J. (2003) Impaired inhibition by dexamethasone of cytokine release by alveolar macrophages from COPD patients. Am. J. Respir. Crit. Care Med. 167, 24-31.

65. Culpitt, S.V., **Rogers, D.F.**, Fenwick, P.S., Shah, P., de Matos, C., Russell, R.E.K., Barnes, P.J. & Donnelly, L.E. (2003) Inhibition by red wine extract, resveratrol, of cytokine release by alveolar macrophages in COPD. Thorax 58, 942-946.

66. Culpitt, S.V., **Rogers, D.F.**, Traves, S.L., Barnes, P.J. & Donnelly, L.E. (2005) Sputum matrix metalloproteases: comparison between chronic obstructive pulmonary disease and asthma. Respir. Med. 99, 703-710.

Reviews/articles

1. Jeffery, P.K., **Rogers, D.F.** & Ayers, M. (1985) Effect of oral acetylcysteine on tobacco smoke-induced secretory cell hyperplasia. Eur. J. Respir. Dis. 66 (suppl. 139), 117-122.

2. Barnes, P.J., Belvisi, M.G. & **Rogers, D.F.** (1990) Modulation of neurogenic inflammation: novel approaches to inflammatory diseases. Trends Pharmacol. Sci. 11, 185-189.

3. **Rogers, D.F.** & Dewar, A. (1990) Neural control of airway mucus secretion. Biomedicine & Pharmacotherapy 44, 447-453.

4. **Rogers, D.F.** & Evans, T.W. (1992) Plasma exudation and oedema: major contributors to asthma? British Medicial Bulletin 48, 120-134.

5. Ramnarine, S.I. & **Rogers, D.F.** (1994) Non-adrenergic, non-cholinergic neural control of mucus secretion in the airways. Pulmonary Pharmacol. 7, 19-33.

6. **Rogers, D.F.** (1994) Airway goblet cells: responsive and adaptable front line defenders. Eur. Respir. J. 7, 1690-1706.

7. **Rogers, D.F.** & Ganderton, D. (1995) Determining equivalence of inhaled medications. Respir. Med. 89, 253-261.

8. **Rogers, D.F.** (1995) Neurokinin receptors subserving airways secretion. Canadian J. Physiol. Pharmacol. 73, 932-939.

9. Tetley, T.D. & **Rogers, D.F.** (1996) Development of new treatments for lung disease. Respir. Med. 90, 5-23.

10. **Rogers, D.F.** (1996) Scorpion venoms: taking the sting out of lung disease. Thorax 51, 546-548.

11. Khawaja, A.M. & **Rogers, D.F.** (1996) Tachykinins: receptor to effector. International J. Biochem. Cell Biol. 28, 721-738.

12. **Rogers, D.F.** (1997) Neurogenic inflammation in lung disease: burnt out? Inflammopharmacology 5, 319-329.

13. **Rogers, D.F.** (1997) *In vivo* test models for studying airway mucus secretion. Pulmonary Pharmacol. Therapeutics 10, 121-128.

14. **Rogers, D.F.** & Laurent, G.J. (1998) New ideas on pathophysiology and treatment of lung disease. Thorax 53, 200-210.

15. **Rogers, D.F.** & Giembycz, M.A. (1998) Asthma therapy for the 21st Century.

Trends Pharmacol. Sci. 19, 160-164.

16. **Rogers, D.F.** & Giembycz, M.A. (1998) Conquering airway inflammation in the 21st Century. Drug Discovery Today 3, 532-535.

17. **Rogers, D.F.** & Barnes, P.J. (1999) COPD: New developments and therapeutic opportunities. Trends Pharmacol. Sci. 20, 352-354.

18. Matthews, J.G. & **Rogers, D.F.** (1999) rhuMab-E25. Curr. Opin. Anti-inflamm. Immunomodulatory Investigational Drugs 1, 454-461.

19. Culpitt, S. & **Rogers, D.F.** (2000) Evaluation of current pharmacotherapy of chronic obstructive pulmonary disease. Expert Opinion Pharmacother. 1, 1007-1020.

20. **Rogers, D.F.** (2000) Mucus pathophysiology in COPD: differences to asthma, and pharmacotherapy. Monaldi Arch. Chest Dis. 55, 324-332.

21. **Rogers, D.F.** (2000) Motor control of airway goblet cells and glands. Respir. Physiol. 125 , 129-144.

22. **Rogers, D.F.** (2001) Tachykinin receptor antagonists for asthma and COPD. Exp. Opinion Ther. Patents 11, 1097-1121.

23. **Rogers, D.F.** (2002) Mucoactive drugs for asthma and COPD: any place in therapy? Exp. Opinion Invest. Drugs 11, 15-35.

24. **Rogers, D.F.** (2002) Pharmacological regulation of the neuronal control of airway mucus secretion. Curr. Opin. Pharmacol. 2, 249-255.

25. Pritchard, K., Smith, A.K. & **Rogers, D.F.** (2002) Measuring mucin gene expression in human airways - Northern analysis and RT-PCR. Thorac. Med. 17, 1-9.

26. **Rogers, D.F.** (2003) The airway goblet cell. Int. J. Biochem. Cell Biol. 35, 1-6.

27. **Rogers, D.F.** (2003) Airway hypersecretion in allergic rhinitis and asthma: new pharmacotherapy. Curr. Allergy Asthma Reports 3, 238-248.

28. **Rogers, D.F.** (2003) Pulmonary mucus: pediatric perspective. Pediatric Pulmonol. 36, 178-188.

29. Donnelly, L.E. & **Rogers, D.F.** (2003) Therapy for chronic obstructive pulmonary disease in the 21st Century. Drugs 63, 1973-1998.

30. Donnelly, L.E. & **Rogers, D.F.** (2003) Antiproteases and retinoids for treatment of chronic obstructive pulmonary disease. Exp Opinion Therapeutic Drugs 13, 1345-

1372.

31. **Rogers, D.F.** (2004) Airway mucus hypersecretion in asthma: an undervalued pathology? Curr. Opinion Pharmacol. 4, 241-250.

32. **Rogers, D.F.** (2005) Mucociliary dysfunction in COPD: effect of current pharmacotherapeutic options. Pulm. Pharmacol. Ther. 18, 1-8.

33. **Rogers, D.F.** (2005) The role of airway secretions in COPD: pathophysiology, epidemiology and pharmacotherapeutic options. COPD: J. Chronic Obstructive Pulmonary Disease 2, 341-353.

34. **Rogers, D.F.** & Barnes, P.J. (2006) Treatment of airway mucus hypersecretion. Ann. Med. 38, 116-125.

35. **Rogers, D.F.** (2006) Airway mucus hypersecretion: rationales for pharmacotherapy. J. Organ Dysfunctions (in press).

36. Foster, K., Adams, E.J., Durose, L., Cruttwell, C.J., Marks, E., Shone, C.C., Chaddock, J.A., Cox, C.L., Heaton, C., Sutton, J.M., Wayne, J., Alexander, F.C.G. & **Rogers, D.F.** (2006) Re-engineering the target specificity of clostridial neurotoxins - a route to novel therapeutics. Neurotoxicity Research (in press).

Book chapters

1. Jeffery, P.K., Ayers, M. & **Rogers, D.F.** (1982) The mechanisms and control of bronchial mucous cell hyperplasia. *In*: Mucus in Health and Disease II, eds. E.N. Chantler, J.B. Elder & M. Elstein, Adv. Exp. Med. Biol. pp. 144, 399-409. Plenum Press, London.

2. Jeffery, P.K., **Rogers, D.F.**, Ayers, M., Evans, P.M. & Williams, D.A. (1984) Chronic effects of drugs on airway mucus-secreting cells. *In*: Drugs and the Lung, eds. G. Cumming & G. Bonsignore, Life Science Series 14, pp. 87-115. Plenum Publishing Corporation, London.

3. Jeffery, P.K., **Rogers, D.F.**, Ayers, M. & Shields, P.A. (1984) Structural aspects of cigarette smoke-induced pulmonary disease. *In*: Smoking and the Lung, eds. G. Cumming & G. Bonsignore, Life Science Series, pp. 1-31. Plenum Publishing Corporation, London.

4. **Rogers, D.F.**, Alton, E.W.F.W. & Barnes, P.J. (1990) Airway secretion. *In*: The Metabolic and Molecular Basis of Acquired Disease, eds. R.D. Cohen, K.G.M.M. Alberti, B. Lewis & A.M. Denman, vol. 2, pp. 1979-2010. Balliere Tindall, London.

5. **Rogers, D.F.** (1993) Mucous glands and goblet cells. *In*: Pharmacology of the

Respiratory Tract: Clinical and Experimental, eds. K.F. Chung & P.J. Barnes. Lung Biology in Health and Disease, ed. C. Lenfant, pp 583-620. Marcel Dekker Inc., New York.

6. **Rogers, D.F.** (1994) Influence of respiratory tract fluid on airway calibre. *In*: Airways Smooth Muscle: Development, and Regulation of Contractility, eds. D. Raeburn & M.A. Giembycz, pp. 375-409. Birkhäuser Verlag, Basel, Switzerland.

7. **Rogers, D.F.** (1997) Neural control of airway secretions. *In*: The Autonomic Nervous System, ed. G. Burnstock, vol. 7, Autonomic Control of the Respiratory System, ed. P.J. Barnes, pp. 201-227. Harwood Academic Publishers GmbH, The Netherlands.

8. **Rogers, D.F.** & Barnes, P.J. (1997) Neural control of the airway vasculature. *In*: The Autonomic Nervous System, ed. G. Burnstock, vol. 7, Autonomic Control of the Respiratory System, ed. P.J. Barnes, pp. 229-248. Harwood Academic Publishers GmbH, The Netherlands.

9. Newman, T.M. & **Rogers, D.F.** (1997) The microanatomy of airway mucus secretion. *In*: Airway Mucus: Basic Mechanisms and Clinical Perspectives, eds. D.F. Rogers & M.I. Lethem, pp. 67-89. Birkhäuser Verlag, Basel, Switzerland.

10. Fung, D.C.K. & **Rogers, D.F.** (1997) Airway submucosal glands: physiology and pharmacology. *In*: Airway Mucus: Basic Mechanisms and Clinical Perspectives, eds. D.F. Rogers & M.I. Lethem, pp. 179-210. Birkhäuser Verlag, Basel, Switzerland.

11. Liu, Y.C., Khawaja, A.M. & **Rogers, D.F.** (1998) Pathophysiology of airway mucus secretion in asthma. *In*: Asthma: Basic Mechanisms and Clinical Management, Third Edition, eds. P.J. Barnes, I.W. Rodger & N.C. Thomson, pp. 205-227. Academic Press, London.

12. Belvisi, MG. & **Rogers, D.F.** (1998) Neurogenic inflammation in the airways: measurement of microvascular leakage. *In*: Methods in Pulmonary Research, eds. S. Uhlig & A.E. Taylor, pp. 231-250. Birkhäuser Verlag, Basel, Switzerland.

13. **Rogers, D.F.** (2001) Mucus hypersecretion in chronic obstructive pulmonary disease. *In*: Chronic Obstructive Pulmonary Disease: Pathogenesis to Treatment. Novartis Foundation Symposium 234, pp. 65-83. John Wiley & Sons, Ltd, Chichester.

14. **Rogers, D.F.** (2001) Mucus regulation. *In*: New Drugs for Asthma, Allergy and COPD, eds. T.T. Hansel & P.J. Barnes. Progress in Respiratory Research, vol 31, pp 160-164. Karger, Basel.

15. **Rogers, D.F.** (2001) Muscarinic control of airway mucus secretion. *In*:

Muscarinic Receptors in Airway Diseases, eds. J. Zaagsma, H. Meurs, A.F. Roffel, pp. 175-201. Birkhäuser Verlag, Basel, Switzerland.

16. Pritchard, K., Smith, A.K. & **Rogers, D.F.** (2001) Measurement of airway mucin gene expression. *In*: Human Airway Inflammation: Sampling Techniques and Analytical Protocols, eds. Rogers, D.F. & Donnelly, L.E. Methods in Molecular Medicine series, pp. 285-294. Humana Press Inc., Totowa, U.S.A.

17. Smith, A.K. & **Rogers, D.F.** (2001) In vivo models of airway goblet cell hyperplasia and mucin gene expression. *In*: Cilia and Mucus: From Development to Respiratory Defense, ed. M. Salathe, pp. 239-251. Marcel Dekker Inc., New York.

18. Nightingale, J.A. & **Rogers, D.F.** (2002) Should drugs affecting mucus properties be used in stable COPD? Clinical Evidence. *In*: Clinical Management of Stable COPD, eds. T. Similowski, W.A. Whitelaw & J.-P. Derenne. Lung Biology in Health and Disease, ed. C. Lenfant, pp. 405-425. Marcel Dekker Inc., New York.

19. **Rogers, D.F.** (2004) Mucus hypersecretion in COPD. *In*: Recent Advances in Pathophysiology of COPD, eds. T.T. Hansel & P.J. Barnes. Progress in Inflammation Research, ed. M.J. Parnham, pp. 101-119. Birkhäuser Verlag, Basel, Switzerland.

20. **Rogers, D.F.** (2004) Overview of airway mucus clearance. *In*: Therapy of Mucus Clearance Disorders, eds. B. Rubin & C. van der Schans, pp. 1-27. Marcel Dekker Inc., New York.

21. **Rogers, D.F.** (2005) Airway mucus in COPD: pathophysiology and treatment. *In*: Chronic Obstructive Pulmonary Disease: Cellular and Molecular Mechanisms, ed. P.J. Barnes, pp. 83-111. New York, Marcel Dekker.

22. **Rogers, D.F.** & Rubin, B.K. (2006) Mucolytics for COPD. *In*: COPD, eds. R. Stockley, S. Rennard, K. Rabe & Celi, B. Blackwell, Oxford, UK (in press).

Editorials

1. **Rogers, D.F.** & O'Connor, B.J. (1993) Airway hyperresponsiveness: relation to asthma and inflammation? Thorax 48, 1095-1096.

2. **Rogers, D.F.** (1996) Reflexly runny noses: neurogenic inflammation in the nasal mucosa. Clin. Exp. Allergy 26, 365-367.

3. **Rogers, D.F.** (2002) Airway goblet cell hyperplasia in asthma: hypersecretory and antiinflammatory? Clin. Exp. Allergy 32, 1124-1127.

Other articles

1. **Rogers, D.F.** (1986) Oralt acetylcystein hammar "bronkit" hos ratta. Tika Information (AB Tika, Lund, Sweden) 6, 1-4.

2. **Rogers, D.F.** (1988) Cystisk pankreasfibros - rapport fran en orskningskonferens. Tika Information (AB Tika, Lund, Sweden) 1, 2-4.

3. **Rogers, D.F.** (1996) Breathing new life into asthma treatments. Biologist (Journal of the Institute of Biology) 43, 81-85.

Electronic publications

1. Nightingale, J.A. & **Rogers D.F.** (1999) Evaluation of R,R-formoterol. Current Drugs Ltd., Investigational Drugs Database: http://www.IDdb.com (13th January).

2. **Rogers, D.F.** (1999) Evaluation of SKF-94120. Current Drugs Ltd., Investigational Drugs Database: http://www.IDdb.com (18th January).

Editor, Review Series

1. **Rogers, D.F.** (1992-1993) New Perspectives on Basic Mechanisms in Lung Disease. Thorax 47 (12) - 48 (5). Introduction: (1992) 47, 1063.

2. Laurent, G.J. & **Rogers, D.F.** (1996-1998) Science Matters. Thorax 51 (2) - 53 (3). Introduction: **Rogers, D.F.** & Laurent, G.J. (1996) 51, 217.

Books

1. **Rogers, D.F.** (1984) The effect of tobacco smoke and nicotine on rat airway epithelium and the response of tobacco smoke-induced secretory cell hyperplasia to anti-inflammatory drugs. Ph.D. Thesis, University of London.

2. **Rogers, D.F.** & Lethem, M.I. eds. (1997) Airway Mucus: Basic Mechanisms and Clinical Perspectives. Respiratory Pharmacology and Pharmacotherapy series. Basel, Switzerland, Birkhäuser Publishing Ltd.

3. **Rogers, D.F.** & Donnelly, L.E. eds. (2001) Human Airway Inflammation: Sampling Techniques and Analytical Protocols. Methods in Molecular Medicine series. Totowa, U.S.A., Humana Press Inc.

Talks/seminars/oral presentations

1981

1. The Canadian Congress of Laboratory Medicine. University of Toronto, Canada. The effect of antiinflammatory agents on the response of bronchial epithelium to

tobacco smoke.

1982

2. British Association for Lung Research, Autumn Meeting. Chelsea College, London. The effect of nicotine on experimental bronchial secretory cell hyperplasia.

3. Biomedical Research Seminar. Cardiothoracic Institute, London. Experimental bronchitis.

1983

4. Pathological Society of Great Britain & Ireland, Winter Meeting. University of Birmingham. Inhibition of tobacco smoke-induced secretory cell hyperplasia in rat airways by anti-inflammatory drugs.

5. British Association for Lung Research, Autumn Meeting. University of Edinburgh. The inhibitory effect of the mucolytic agent, N-acetylcysteine, on experimentally-induced bronchitis.

1984

6. Pathological Society of Great Britain & Ireland, Winter Meeting. Royal Postgraduate Medical School, Hammersmith Hospital, London. The inhibitory effect of the mucolytic agent, N-acetylcysteine, on experimentally-induced bronchitis.

7. Physiological Society, Imperial College Meeting, London. Tobacco smoke-induced tracheal hypersecretion in the rat.

8. European Society for Clinical Investigation. University of Milan, Italy. Experimental hypersecretion of tracheal mucus.

9. Ninth International Cystic Fibrosis Congress. Metropole Hotel, Brighton. Inhibition and reversibility of experimental bronchitis.

10. Medical Research Society. University of Oxford. Effect of oral N-acetylcysteine on tracheal hypersecretion in the rat.

11. Biomedical Research Seminar. Cardiothoracic Institute, London. Modulation of experimental bronchitis.

12. British Association for Lung Research, Summer Meeting. Cardiothoracic Institute, London. Do rats catch C.O.L.D.?

1985

13. Research and Development Seminar, AB Draco, Lund, Sweden. Development of animal models of chronic bronchitis.

14. Physiology Seminar. St. George's Hospital Medical School, London. Mechanisms and modulation of experimental bronchitis.

1986

15. 14th Annual Meeting of the European Working Group for Cystic Fibrosis. Budapest, Hungary. Control of airways' secretion in CF.

16. British Pharmacological Society. The Hatfield Polytechnic. Human bronchial secretion: effect of substance P, muscarinic and adrenergic stimulation in vitro.

1987

17. Airway Mucus Club. Cardiothoracic Institute, London. Airway mucus in CF.

18. Biomedical Research Seminar. Cardiothoracic Institute, London. Abnormal autonomic control of mucus secretion in cystic fibrosis bronchi.

19. British Association for Lung Research, Spring Workshop. Town Hall, Henley-upon-Thames. Use of Evans blue dye to study airway microvascular permeability.

20. The Physiological Society, Mill Hill Meeting, London. Effect of substance P, neurokinins and calcitonin gene-related peptide on microvascular permeability in guinea pig airways.

21. Medical Research Society. Royal Postgraduate Medical School, Hammersmith Hospital Medical School, London. Bradykinin-induced microvascular leakage in guinea pig airways: involvement of platelet activating factor and prostanoids.

1988

22. Airway Mucus Club. St. George's Hospital Medical School, London. Substance P and mucus secretion.

23. Cystic Fibrosis Research Trust: Research Worker's Conference. University of Manchester. Abnormal autonomic control of mucous secretion in CF bronchi in vitro: reduced response to agonist drugs.

24. British Thoracic Society, Autumn Meeting. Kensington Town Hall, London. Inhibition of airway microvascular leakage by corticosteroids.

1989

25. 24th Annual Congress of the SEPCR. Palais de Beaulier, Lausanne, Switzerland. Platelet activating factor affects formation and composition of respiratory tract fluid.

26. XIVth Congress of European Academy of Allergology and Clinical Immunology. West Berlin, FRG. The effect of mediators on microvascular permeability.

1990

27. Respiratory Division Seminar. Hammersmith Hospital, London. Airway mucus secretion.

28. Taunus Medical Society. Frankfurt, FRG. Novel approaches in control of airway mucus.

29. American Thoracic Society. Boston, USA. Effect of platelet activating factor on bioelectric properties of guinea pig trachea in vitro.

30. Joint Meeting SEP-SEPCR. London, UK. Tachykinins and airway secretion.

31. Airway Mucus Club. St. George's Hospital Medical School, London. Neuropeptides and goblet cell secretion.

1991

32. Transatlantic Airway Conference on Airway Mucins, Miami, USA. Invited Discussant.

33. Joint Meeting of the British Pharmacological Society and the Association Francaise des Pharmacologistes, Lyon, France. A potassium channel activator (Lemakalim) modulates vagally-mediated goblet cell secretion in guinea pig trachea.

34. International Union of Physiological Sciences, Prague, Czechoslovakia. Neurogenic inflammation in the airways: mechanisms and modulation.

35. Respiratory Division Seminar, Royal Postgraduate Medical School, Hammersmith Hospital, London. Neurogenic airway secretion.

36. Physiology Department Seminar, St George's Hospital Medical School, London. Airways secretions: mechanisms and modulations.

1992

37. Research Seminar, Roche Products Limited, Welwyn Garden City. Neuropeptides and airway secretion: mechanisms and modulation.

38. Research Seminar, Bayer plc, Stoke Poges. Contributory factors in chronic inflammatory lung obstruction.

39. Research Seminar, Institute du Recherche Jouveinal, Paris, France. Pharmacology of airway secretion.

1993

40. XXXII International Union of Physiological Sciences Congress, Glasgow, Scotland. Goblet cells.

41. Research Seminar, Pfizer Central Research, Sandwich. Muscarinic and tachykinin control of airway function.

42. European Respiratory Society Annual Congress, Florence, Italy. Neuropeptide control of mucus production.

1994

43. Taunus Medical Society, Mannheim, Germany. New therapeutic concepts for asthma.

44. Airway Mucus Club, Kings College London. Tachykinin receptors mediating secretion of airway mucus.

45. Satellite Symposium of the XIIth International Union of Pharmacology (IUPHAR) Congress: Peptides and their Antagonists in Tissue Injury; Montreal, Canada. Neurokinin receptors subserving airways secretion.

1995

46. West London Respiratory Meeting, National Heart & Lung Institute, London. Inhibition of neurogenic airway mucus secretion.

47. Asthma Directorate, Royal Brompton Hospital NHS Trust, London. Neural control of airway mucus secretion.

48. Kings College Department of Pharmacy Postgraduate Seminars, London. Neuromodulation of airway mucus secretion.

49. Republic of China Society of Pulmonary and Critical Care Medicine, Taipei and Kaohsiung, Taiwan. Airway hypersecretion.

50. The Speywood Laboratory, St George's Hospital Medical School, London. NANC neurones: physiology and pathophysiology.

51. Schering-Plough Research Institute, Kenilworth, New Jersey, U.S.A. Airway mucus hypersecretion: basic mechanisms and potential therapy.

52. The Rayne Institute, University College London. 'Inhibitory neural control of airway secretion'.

53. Department of Pharmacy, University of Brighton. Inhibiting neurogenic airway mucus secretion.

54. Rhône-Poulenc Rorer, Dagenham. Inhibition of airway mucus secretion: new approaches.

1996

55. NHLI Lunchtime Research Overview. 'Inhibition of neurogenic mucus secretion and microanatomy of exocytosis'.

56. Second National Conference on Asthma Education and Management, Kensington New Town Hall, London. How do we define bioequivalence?

57. Peptide Therapeutics, Cambridge. Airway neural actions and the effect of nedocromil.

58. The 9th Combined Meeting of the World Congress for Bronchology and World Congress for Bronchoesophagology, Taipei, Taiwan. Inhibition of airway mucus secretion: novel developments.

59. National Asthma Campaign Lunchtime Seminar, London. Mucus secretion in asthma: what to do about it?

60. Boehringer Ingelheim COPD Meeting, Weisbaden, Germany. Neurogenic inflammation.

61. Department of Pharmacology Research Seminar, King's College, London. Helping to take the sting out of asthma.

62. National Asthma Campaign Grantholders Symposium, NHLI, London. Inhibition of airway neurogenic mucus secretion.

63. New Jersey Thoracic Society and Pulmonary Research Group, Scientific Session: Symposium on 'Pathology and Treatment of COPD,' New Brunswick, USA. Neuromodulation of airway mucous secretions.
Meeting accredited for Continuing Medical Education (CME).

64. Children's Research Institute, Washington DC, USA. Neuromodulation of airway mucin secretion.

65. The Royal Society of Medicine, London, meeting on 'The Role of Mucus in Respiratory Diseases.' *In vivo* preclinical test models for studying mucus.
CME accredited meeting.

1997

66. Roche Bioscience, Palo Alto, USA. Neurogenic airway mucus secretion: mechanisms and modulation.

67. Zambon Italia, Milan, Italy. Airway mucus secretion: mechanisms and modulation.

1998

68. Institut Pasteur, Paris, France. Airway mucus: models of secretion and hypersecretion.

69. Bayer plc, Slough. Neural control of airway mucus secretion: excitatory and inhibitory mechanisms.

70. University of Cardiff, Wales: BALR symposium on 'Respiratory Tract Epithelium and its Secretions.' 'Goblet cells: exocytosis and plasticity'.

71. Department of Medical Oncology, Charing Cross Hospital, London. Neuroregulation of airway mucus secretion.

72. Faculty of Science and Technology, North East Surrey College of Technology (NESCOT). 'Neuroregulation of airways secretion: therapeutic prospects in asthma'.

1999

73. The Guy's, Kings College & St Thomas' Hospitals Medical & Dental School, London. 'Mucin gene expression in airway inflammation'.

74. Novartis Horsham Research Centre, West Sussex. Airway mucus secretion and hypersecretion: basic mechanisms and therapeutic prospects.

75. Madrid, Spain: European Respiratory Society Annual Congress. Neural control of mucus hypersecretion.

76. Lake Garda, Italy: International Meeting on Mucus and Mucociliary Interactions. Differential mucin gene expression in airways of allergic rats.

77. Taipei, Taiwan: 1st International Conference on Immunopharmacology of Bronchial Asthma. Mucus hypersecretion in bronchial asthma.

2000

78. Parke-Davis Institut de Recherche Jouveinal, Paris, France. Mucus secretion in the airways: role and consequences in pathological conditions.

79. Novartis Foundation Symposium No. 234, 'Chronic Obstructive Pulmonary Disease: Pathogenesis to Treatment', London. 'Mucus hypersecretion'.

80. AstraZeneca R&D Charnwood, Leics. 'Neural control and mucus hypersecretion in asthma and COPD'.

81. GlaxoWellcome R&D, Stevenage, Herts. Airway hypersecretion in asthma and COPD: clinical aspects and experimental models.

82. AstraZeneca, Lund, Sweden. Airway mucus: pathophysiology and pharmacotherapy.

83. 'COPD – Pathogenesis to Therapy' (Allen & Hanburys COPD Symposium), Edinburgh. 'Mucus hypersecretion'.

2001

84. Events in Respiratory Medicine, Respiratory Grand Round (NHLI and Royal Brompton & Harefield NHS Trust). 'Mucus hypersecretion: a distinct cholinergic disease?' (with Professor K.F. Chung).

85. Berlin, Germany: The XXth Congress of the European Academy of Allergology and Clinical Immunology. 'Airway mucosa: secretory cells, mucus and mucin genes'.

86. Roche Bioscience, Palo Alto, California, U.S.A. 'Mucus hypersecretion in asthma and COPD: pathophysiology and models'.

87. Centre for Respiratory Research, The Rayne Institute, University College London. 'Mucin gene expression in airway inflammation'.

88. Department of Cell and Molecular Biology, University of Lund, Lund, Sweden. 'Airway mucin gene expression: pathophysiology and models'.

2002

89. National Clinical Coding Conference, London. 'Mucous hypersecretion in asthma and COPD'.

90. Merck Frosst Canada, Quebec, Canada. 'Mucus hypersecretion in asthma and COPD: pathophysiology, models and treatment'.

91. 'COPD 3', International Convention Centre, Birmingham. 'Mucus regulation'.

92. 2002 International Meeting of the Interest Group for Cilia, Mucus, and Mucociliary Interactions and the PCD Foundation. Wyndham Miami Beach Resort, Miami, U.S.A. 'Airway mucus hypersecretion and considerations for rational novel therapy'.

2003

93. AstraZeneca, Charnwood, Loughborough. 'Airway mucus hypersecretion: models and therapies'.

94. The Triangle of Asthma Management: Patient-Substance-Inhaler. 'Airway secretions'. NHLI, Imperial College London.

95. University of Sunderland, Molecular Biology of the Cell Forum Seminar. 'Airway mucus hypersecretion: basic mechanisms and novel pharmacotherapy'.

96. British Society for Allergy and Clinical Immunology, East Midlands Conference Centre, Nottingham. 'Neuronal control of airway mucus secretion'.

97. University of Brighton: BALR symposium on Airway Epithelial Defence Mechanisms. 'Regulation of airway mucin secretion: stimulation and inhibition in experimental models and human disease'.

98. 6th Annual Conference on COPD, Management Forum, London. 'Mucus hypersecretion in COPD: pathophysiology and novel treatments'.

99. Centre for Applied Microbiological Research, Porton Down. 'Airway mucus secretion: stimulation and rational approaches to inhibition of hypersecretion'.

2004

100. Oxagen Limited, Oxford. 'Airway mucus hypersecretion: models and pharmacotherapeutics'.

101. COPD: The Important Questions III. Therapeutic Interventions Now and in the Future, Marbella, Spain. 'Mucoregulators'.

102. The Breathing Club: All Change in COPD. Chantilly, France. 'Mucus regulation and treatment'.

103. Asthma & Allergy Research Group, NHLI, Imperial College London. 'Mucus regulation and treatment in asthma, COPD and allergic rhinitis'.

104. Centre for Respiratory Research, The Rayne Institute, University College London. 'Airway mucus hypersecretion: new pharmacotherapy in asthma and COPD'.

105. Annual Conference on COPD, Management Forum, London. 'Mucus hypersecretion and modifying agents'.

106. Heatherwood and Wexham NHS Trust Medical Academic Half Day, Heatherwood Hospital, Ascot. 'Airway mucus hypersecretion: basic mechanisms and rationales for novel therapy'.

107. British Thoracic Society, Winter Meeting, London. 'Targeting mucus production in lung disease'.

2005

108. Department of Academic Respiratory Medicine, St. Bartholomew's Hospital, London. 'Mucus hypersecretion in COPD'.

109. Brompton Hospital Respiratory Grand Round. 'Inhibiting airway mucus secretion: botulism for the lungs?'

110. Second Shanghai International Symposium on Respiratory Diseases, Zhongshan Hospital, Fudan University, Shanghai, China. 'Airway mucus hypersecretion: rationales for pharmacotherapy'.

111. University of Leicester. 'Botulism for the lungs: inhibiting airway mucus secretion'.